

digitizing the analog outbound combined signal as a single entity into a single stream of outbound digital samples;

transmitting the stream of outbound digital samples to the remote cell;  
at the remote cell —

receiving the stream of outbound digital samples from the base station;

converting the single stream of outbound digital samples as a single entity into the RF analog outbound combined signal representing all of the outbound telephone transmissions in the set of channels;

broadcasting the analog outbound combined signal directly to mobile units in the cell;

receiving a plurality of simultaneous inbound telephone transmissions from the mobile units in the cell as an RF analog inbound combined signal representing all of the inbound telephone transmissions in the set of channels;

digitizing the analog inbound combined signal as a single entity into a single stream of inbound digital samples;

transmitting the single stream of inbound digital samples from the remote cell to the base station;

at the base station —

converting the single stream of inbound digital samples into a single RF analog inbound signal representing all of the inbound telephone transmissions in the set of channels;

recovering each of the plurality of inbound telephone transmissions from the single RF analog inbound signal;

delivering the inbound telephone transmissions to the network.

*B-1 Cont.*  
~~46~~<sup>48</sup> (New) A method according to claim ~~45~~<sup>49</sup>, wherein the step of transmitting the single stream of outbound digital samples to the remote cell comprises modulating the outbound digital stream onto an optical source and transmitting it via an optical fiber.

~~47~~<sup>49</sup> (New) A method according to claim ~~45~~<sup>49</sup>, wherein the step of transmitting

## AMENDMENT AND RESPONSE

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Filing Date: March 23, 1995

Title: CELLULAR COMMUNICATIONS SYSTEM WITH CENTRALIZED BASE STATIONS AND DISTRIBUTED ANTENNA UNITS

Page 3

Dkt: 500.002US7

the single stream of inbound digital samples from the remote cell to the base station comprises modulating the inbound digital stream onto an optical source and transmitting it via an optical fiber.

<sup>524</sup>~~48~~ (New)

A method according to claim <sup>491</sup>~~45~~, wherein the step of transmitting the single stream of outbound digital samples to the remote cell comprises interfacing the outbound digital stream to a public switched network, and transmitting it via the public switched network to the remote cell.

<sup>535</sup>~~49~~ (New)

A method according to claim <sup>524</sup>~~48~~, wherein the step of transmitting the single stream of outbound digital samples to the remote cell includes carrying it on a T1 line.

<sup>546</sup>~~50~~ (New)

A method according to claim <sup>524</sup>~~48~~, wherein the step of transmitting the single stream of outbound digital samples to the remote cell includes carrying it on a SONET line.

<sup>557</sup>~~51~~ (New)

A method according to claim <sup>491</sup>~~45~~, wherein the step of transmitting the single stream of inbound digital samples to the base station comprises interfacing the inbound digital stream to a public switched network, and transmitting it via the public switched network to the base station.

<sup>568</sup>~~52~~ (New)

A method according to claim <sup>524</sup>~~48~~, wherein the step of transmitting the single stream of outbound digital samples to the remote cell includes carrying it on a T1 line.

<sup>579</sup>~~53~~ (New)

A method according to claim <sup>524</sup>~~48~~, wherein the step of transmitting the single stream of outbound digital samples to the remote cell includes carrying it on a SONET line.

<sup>5810</sup>~~54~~ (New)

A method of communicating a plurality of two-way, inbound/outbound, cellular telephone transmissions at a centrally located base station using a set

B,  
cont.

64

of channels, comprising the steps of:

receiving a plurality of outbound telephone transmissions from a network;

generating a separate RF analog outbound channel carrier for each channel in the set;

analog modulating the outbound telephone transmissions onto respective ones of the RF analog outbound channel carriers so as to produce a set of individual RF analog outbound modulated channel carriers;

combining the set of modulated analog channel carriers into a single RF analog outbound combined signal representing all of the outbound telephone transmissions in the set of channels;

digitizing the analog outbound combined signal as a single entity into a single stream of outbound digital samples;

transmitting the single stream of outbound digital samples from the base station to a cell located remotely from the base station for broadcast to a plurality of mobile units;

receiving from the remote cell a single stream of inbound digital samples representing a plurality of inbound telephone transmissions from the mobile units;

converting the single stream of inbound digital samples into a single RF analog inbound signal representing all of the inbound telephone transmissions in the set of channels;

recovering each of the plurality of inbound telephone transmissions from the single RF analog inbound signal;

delivering the inbound telephone transmissions to the network.

59 11  
55 (New) A method according to claim 34, wherein the step of digitizing the analog outbound combined signal includes grouping predetermined sequences of the digital samples into frames.

60 12  
56 (New) A method according to claim 55, wherein the step of digitizing the analog outbound combined signal further includes multiplexing further digital samples into the frames.

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Page 5

Dkt: 500.002US7

~~61~~ 13  
~~57~~

(New)

~~60~~ 12  
~~56~~, wherein the further digital

samples represent control signals directed to the remote unit.

~~62~~ 14  
~~58~~

(New)

A method of communicating a plurality of two-way, inbound/outbound, cellular telephone transmissions at a remotely located cell using a set of channels, comprising the steps of:

receiving simultaneous inbound telephone transmissions from a plurality of mobile units in the cell as an RF analog inbound combined signal representing all of the inbound telephone transmissions in the set of channels;

digitizing the analog inbound combined signal as a single entity into a single stream of inbound digital samples;

transmitting the single stream of inbound digital samples to a centrally located base station;

receiving from the base station a stream of digitized samples representing a single RF analog outbound combined signal containing all of the outbound telephone transmissions in the set of channels;

converting the single stream of outbound digital samples as a single entity into the RF analog outbound combined signal containing all of the outbound telephone transmissions in the set of channels;

broadcasting the analog outbound combined signal directly to mobile units in the cell.

~~63~~ 15  
~~59~~

(New)

~~62~~ 14  
~~58~~, wherein the step of receiving

simultaneous inbound telephone transmissions from a plurality of mobile units in the cell occurs at a primary antenna site within the cell, and comprising the further steps of:

receiving the simultaneous inbound telephone transmissions from the plurality of mobile units as a diversity RF analog inbound combined signal representing all of the inbound telephone transmissions in the set of channels at a diversity antenna site within the cell;

transmitting a representation of the diversity combined signal to the centrally located base